

PATENT COOPERATION TREATY

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NOTIFICATION OF ELECTION
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
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 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 28 August 2000 (28.08.00)	To: Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231 ETATS-UNIS D'AMERIQUE in its capacity as elected Office
International application No. PCT/GB99/04418	Applicant's or agent's file reference P020668WO
International filing date (day/month/year) 23 December 1999 (23.12.99)	Priority date (day/month/year) 05 January 1999 (05.01.99)
Applicant WIGHTMAN, Alan et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

26 July 2000 (26.07.00)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Zakaria EL KHODARY Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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REC'D 24 APR 2001

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P020668WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB99/04418	International filing date (day/month/year) 23/12/1999	Priority date (day/month/year) 05/01/1999
International Patent Classification (IPC) or national classification and IPC A22C13/00		
<p>Applicant DEXTER SPECIALITY MATERIALS, LTD. et al.</p>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 6 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 		

Date of submission of the demand 26/07/2000	Date of completion of this report 20.04.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Simson, G Telephone No. +49 89 2399 2078



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/04418

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-3,5-8,12	as originally filed		
4,9-11	as received on	07/02/2001 with letter of	02/02/2001

Claims, No.:

1-9	as originally filed		
10-21	as received on	07/02/2001 with letter of	02/02/2001

Drawings, sheets:

1/1	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/04418

4. The amendments have resulted in the cancellation of:

the description, pages:
 the claims, Nos.:
 the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1 - 21
	No:	Claims
Inventive step (IS)	Yes:	Claims 1 - 21
	No:	Claims

2. Citations and explanations
see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Closest prior art document is considered to be WO-A-9510190. It discloses a casing paper which contains a web material comprising cellulosic and synthetic fibres, the web material being bonded with a binder resin, see page 4 para. 3 - page 7, para. 5 claims 1 - 35; examples 1 - 4).

The particular selection of synthetic fibres in independent claims 11 and 17 is neither known from, nor rendered obvious by, the available prior art. The absorbency characteristics of the claimed fibres are not comparable to natural cellulosic fibres which appears to be a precondition for the choice of such fibres in WO-A-9510190. The subject-matter of independent claim 1 is considered to be novel and inventive since the effect of reducing variations in wet expansion in the cross direction of the web material by the use of synthetic fibres is neither known from, nor rendered obvious by the prior art.

Claims 1, 11 and 17 and dependent Claims 2 - 10, 12 - 16, 18 - 21 therefore satisfy the requirements of Article 33(2) and (3) PCT. The industrial applicability (Article 33(4) PCT) is obvious.

10. The use according to any of claims 1 to 9, in which drying of the said web material and/or of the bonded casing paper is effected by means of a plurality of heated cylinders.

11. A casing paper, suitable for the preparation of casing material for the packaging of 5 sausage or other meat product or other food products, which casing paper contains a web material comprising cellulosic fibres and synthetic fibres, the web material being bonded with regenerated cellulose or with a binder resin or mixture of resin binders.

12. A casing paper according to claim 11, in which the synthetic fibres are selected 10 from polyamide, polyester and polyolefin fibres.

13. A casing paper according to claim 11 or 12, in which the cellulosic web includes abaca and/or other vegetable fibres.

15 14. A casing paper according to claim 11, 12 or 13, in which the cellulosic web includes woodpulp fibres in an amount of up to 50% by weight of the total of cellulosic and synthetic fibres.

15. A casing paper according to any of claims 11 to 14, in which the content of 20 synthetic fibres in the web material is from 0.5 to 20% by weight of the total of cellulosic and synthetic fibres.

16. A casing paper according to claim 15, in which the said content of synthetic fibres is from 3 to 9% by weight.

25

17. A process for preparing casing paper which comprises forming a web material containing cellulose fibres and synthetic fibres, and impregnating the web material with a resin binder, or mixture of resin binders, or with viscose.

30 18. A process according to claim 17, in which the web material is formed by a wet-laying method.

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19. A process according to claim 17 or 18, which is directed to the preparation of a casing paper according to any of claims 12 to 16.

20. A process according to claim 17, 18 or 19, in which drying of the web material
5 and/or of the casing paper is effected by means of a plurality of heated cylinders.

21. A casing material for the packaging of sausage or other meat product or other food products, which comprises material, e.g. in the form of a sheet or tube, comprising regenerated cellulose in which there is embedded a casing paper according to any of claims
10 11 to 16 or a casing paper prepared by a process according to any of claims 17 to 20.

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the invention also has a reduced tensile strength but the wet bursting strength does not show a significant change.

Example 4: target grammage 21g/m²

5 In this example casing paper has been produced using the resin impregnation process of US-A-5,300,319. Two drying stages were employed: after wet-laying and after the impregnation with resin.

Property	100% abaca	96% abaca, 6% polyester
MD tensile strength (N/m)	1835	1699
CD wet expansion, mean (%)	1.5	0.96
CD wet expansion range, 16 positions (%)	1.36	1

10

Example 5:

Casing paper manufactured according to Example 2 was formed into casing tubes with a nominal diameter of 70 mm. The diameter of the tubes was then measured when the 15 internal pressure was 21 kPa. For casing paper taken from the centre of the machine which has a CD wet expansion of 0.9%, the diameter under pressure was 76.5 mm; for paper taken from the edge of the machine which had a CD wet expansion of 1.3%, the diameter under pressure was 77.2 mm. (The CD wet expansion values in this Example were measured by a slightly different method to that used in Example 2: this, coupled with 20 sampling differences, may explain the differences between the values quoted in this Example and those quoted in Example 2.) For a 70 mm nominal diameter casing tube the diameter tolerance under pressure is 74.6 mm to 77.6 mm so that paper from any part of the paper machine could have been used to produce this size of casing. If paper made by the prior art method had been used then paper from the edge of the machine would have 25 been outside the tolerance. It should be noted that paper made according to the prior art with a CD wet expansion as low as 0.9% would produce casings with a diameter under pressure below the lower tolerance limit; the paper of the invention is not as "stiff" as the prior art material.

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Example 2: target grammage 19 g/m²

Property	100% abaca	96% abaca, 6% polyester
Grammage (g/m ²)	19.03	19.1
MD tensile strength (N/m)	1667	1474
CD tensile strength (N/m)	1006	898
Wet burst (Kpa)	48	34
CD wet expansion, centre (%)	1.58	1.19
CD wet expansion, edge (%)	2.7	1.8
CD wet expansion range, 16 positions (%)	1.28	0.82

5 Example 3: target grammage 17 g/m²

Property	100% abaca	96% abaca, 6% polyester
Grammage (g/m ²)	17.05	17.31
MD tensile strength (N/m)	1338	1248
CD tensile strength (N/m)	908	765
Wet burst (Kpa)	38	34
CD wet expansion, centre (%)	1.4	1.02
CD wet expansion, edge (%)	2.54	1.55
CD wet expansion range, 16 positions (%)	1.55	0.84

All the examples show that material produced by the method of the invention has a reduced absolute CD wet expansion but the difference between the highest and lowest values by both methods of measurement is significantly reduced. Though there has been a reduction in the absolute value of wet expansion in these examples, it is still possible to control this by control of the degree of stretch applied to the paper during drying. Though these levels of stretch (often termed "draw") cannot be quantified, a comparison of Tests 1 and 2 of Example 1 illustrates that wet expansion level can be controlled. The material of

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Wet expansion is expressed as a percentage of the gauge length (sample length before the test was started).

In the data tables, the wet expansion at the centre and the edge are given. Each of these measures was taken at two preset positions across the width. Also included is the maximum to minimum range (in absolute %) of a cross machine profile measured at 16 equally spaced positions.

10 Test data for the examples are tabulated below:

Example 1 (2 tests of the invention): target grammage 21 g/m²

Property	100% abaca Standard	96% abaca, 6% polyester	
		Test 1	Test 2
Grammage (g/m ²)	20.84	21.29	21.56
MD tensile strength (N/m)	1841	1682	1768
CD tensile strength (N/m)	1235	1025	1112
Wet burst (Kpa)	42	47	43
CD wet expansion, centre (%)	1.35	1.18	0.93
CD wet expansion, edge (%)	2.22	1.86	1.57
CD wet expansion range, 16 positions (%)	1.5	1.07	0.68

15 Figure 1 shows the 16 position profiles of CD wet expansion for the standard material and the material of Test 1.

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In a further aspect, the present invention provides a process for preparing casing paper which comprises forming, preferably by wet-laying, a web containing cellulose fibres and synthetic fibres, and impregnating the web with a resin binder, or mixture of resin binders, 5 or with viscose.

In yet a further aspect, the present invention provides a casing material for the packaging of sausage or other meat product, which comprises material, e.g. in the form of a sheet or a tube, comprising regenerated cellulose in which there is embedded a casing paper 10 according to this invention or a casing paper prepared by a process according to this invention.

Brief description of the drawing

15 The accompanying figure is a graphical representation of the variation of wet expansion along the CD (i) of an exemplary sample of casing paper having a basis weight (grammage) of $21 \text{ m}^2/\text{g}$ and (ii) of, for comparison, a standard casing paper of similar basis weight.

20 ***Description of exemplary embodiments***

The cellulosic fibres are generally vegetable fibres, preferably long vegetable fibres, such as long, lightweight nonhydrated fibres of the Musa type. Typically, the average fibre lengths will be from 4 to 15 mm but the presence of shorter or longer fibres is not 25 precluded. Exemplary vegetable fibres are sisal, flax, jute or preferably, abaca. However, the cellulosic web may also comprise woodpulp fibres, typically in an amount of up to 50% by weight of the total fibre content.

The synthetic fibres are generally of a man-made organic polymer or mixture of man-made 30 organic polymers, e.g. polyesters (e.g. polyethylene terephthalate), polyamides (e.g. poly(hexamethylene adipamide) or polycaproamide, or nylon) or polyolefins (e.g. polyethylene or polypropylene). Fibres made of copolymers also come into consideration. A mixture of two or more types of synthetic fibre may, of course, be used.

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